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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,883	07/26/2001	Michael R. Bruce	AMDA.508PA	7504
7590	05/20/2004			
Crawford PLLC Suite 390 1270 Northland Drive St. Paul, MN 55120				
			EXAMINER CHAN, EMILY Y	
			ART UNIT 2829	PAPER NUMBER

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/915,883	Applicant(s) BRUCE ET AL.	
	Examiner Emily Y Chan	Art Unit 2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1,5-8,10-14 and 17-23 is/are rejected.
- 7) ☒ Claim(s) 2-4,9,15,16 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-24 are presented for examination

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 1,10, 20-22 are rejected under the judicially created doctrine of

obviousness-type double patenting as being unpatentable over claims 1, 10, 21-22 and 26 of U.S. Patent No. 6,488,405 in view of Nikawa ('956).

The reason for this rejection is same as stated on first paragraph of last office action dated on 12-30-03.

2. Claims 5-6, 11-13 and 18 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 10, 21-22 and 26 of U.S. Patent No. 6,488,405 in view of Nikawa ('956).

The reason for this rejection is same as stated on second paragraph of last office action dated on 12-30-03.

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3. Claims 7-8, 14, 17 and 23 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 10, 21-22 and 26 of U.S. Patent No. 6,488,405 in view of Nikawa ('956) above and further in view of Channin ('199).

The reason for this rejection is same as stated on third paragraph of last office action dated on 12-30-03.

4. Claim 19 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 10, 21-22 and 26 of U.S. Patent No. 6,488,405 in view of Nikawa ('956) above and further in view of Kantor et al ('408).

The reason for this rejection is same as stated on fourth paragraph of last office action dated on 12-30-03.

Allowable Subject Matter

5. ~~Claims 2-4, 9, 15-16 and 24 are objected to as being dependent upon a rejected~~
base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reason for allowance is stated in previous office action dated on 4-16-03.

Response to Arguments

6. Applicant's arguments filed on 3-23-04 have been fully considered but they are not persuasive.

Regarding to claims **1, 10, 20-22**, the applicant argued that the '956 reference pertains to the test device being in package (that encloses the die) ...one cannot observe surface defects of the die inside the package". The applicant also argued that

"the claimed subject matter of the '405 reference concerns a thinned die where surface defects are directly observable". Applicant further argued, "There would be no reason or other motivation to implement such a change as suggested in the office action".

However, the examiner disagrees with these assertions and points out the reason why the proposed combination would have been obvious to one skilled in the art.

Firstly, both '956 reference and '405 references are from closely related circuitry defect testing art. Secondly, since '956 reference is directed to an inspection method for integrated circuit, it does not matter whether one can observe the surface defect of the integrated circuit or the surface defects of the die inside the package because it would have been obvious to one of ordinary skill in the art to reposition the surface of the die with respect to the testing device for defect image displaying. Thirdly, both '956 reference and '405 reference use laser beam irradiated on to the chip of the integrated circuit for circuit defect inspection (see '956 reference Fig.9, S111 and '405 reference Col. 9, lines 57-59, Fig 3. 330) and teach displaying a defect image of the die for analysis (see '956 reference Fig.9, S112 and Abstract " defect image") ('405 reference Col. 8, lines 48-55). More specifically, '956 reference teaches that "by using the inferred laser beam as a heating means, ... an observation for an LOC (lead on chip) package device which has been difficult to observe from the surface of a device is performed easily" (see '956 reference Col. 4, lines 22-35). Therefore, it would have been obvious to one of ordinary skill in the testing art will recognize the advantage by using the inferred laser as a heating means and be motivated to provide '405 system

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with the infrared laser beam of '956 reference as claimed because such change would be no more than a substitution of laser sources and one skilled in the testing art would have found the substitution to be obvious.

7. Regarding to **claims 5-6,11-13,and 18**, the applicant argued that "there is other motivation for the combination of these specific teachings, no motivation is expressly stated and therefore none is evidenced".

However, the examiner disagrees with these assertions and points out the motivation for the combination of these specific teachings.

As stated in the last office action dated on 12-30-03 (see paragraph 2), the '956 reference clearly teach the claimed subject matter, it would have been obvious to one of ordinary skill in the art at the time of invention to provide '405 system with the infrared laser beam of '956 reference as claimed because such change would be no more than a substitution of laser sources well-known in the testing art and one skilled in the testing art would have found the substitution to be obvious.

8. Regarding to **claims 7-8,14,17 and 23**, the applicant argued, "motivation for the basic combination of teaching is lacking".

However, the examiner disagrees with this assertion and points out the motivation for the combination for the basic combination of teaching is not lacking.

Claims 7-8,14,17 and 23 recite using nIR laser light to image the die and using the image to identify the portion of circuitry for analysis. Channin ('199) exclusively teaches to detecting the defect of the electrical circuitry due to the phase changes in the layer of liquid crystal by applying a beam of light through the layer of the circuitry. Channin

('199) also exclusively teaches using the image to identify the portion of circuitry that cause the liquid crystal to change phase (see Channin ('199) Col. 4, lines 23-26). It would have been obvious to one of ordinary skill in the art at the time of invention to be motivated to incorporate the teaching of Channin ('199) into the ('405) and ('956)'s system because Channin ('199) discloses that defect circuitry coated with a liquid crystal layer can be easily observed (see Channin ('199) Col. 6, lines 18-20) and the testing circuit of Channin ('199) is functional and mechanical equivalent to the ('405)'s circuitry.

9. Regarding to **19**, the applicant argued that: (1) "motivation for the basic combination of the teachings of these three references is lacking"; and (2) "the ('408) die is operating during testing of the die and that pulsing is advantageous to avoid current spikes associated with clock edges. Applicant fails to recognize where the ('405) reference teaches a concern with spikes at clock edges".

However, the examiner disagrees with these assertions and points out the motivation for the combination of the teachings of these three references is **not** lacking and ('408)'s teaches the feature recited in claim 19.

As for the argument (1) above, it would have been obvious to one of ordinary skill in the art to be motivated to incorporate the pulsing laser feature as taught by ('408) reference in ('956) reference for claim 19 since all the three ('405), ('408) and ('956) references recite using laser light for testing the semiconductor device and the ('408) reference teaches that his system will improve IC testing (see Abstract).

As for the argument (2) above, since claim 19 depends on claim 18, it is the ('956)'s reference, not ('405) reference, is used to teach varying the operation of the inferred laser as recited in claim 18 (see Fig. 7, and col. 11, lines 47-48) and the ('408) reference is used to teach the pulsing laser feature.

THIS ACTION IS MADE FINAL.

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Y Chan whose telephone number is 5712721956. The examiner can normally be reached on 8:30-5:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cuneo Kammie can be reached on 5712721957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ec
5/12/04

David A. Farnel
David A. Farnel
Primary Examiner
5/14/04